

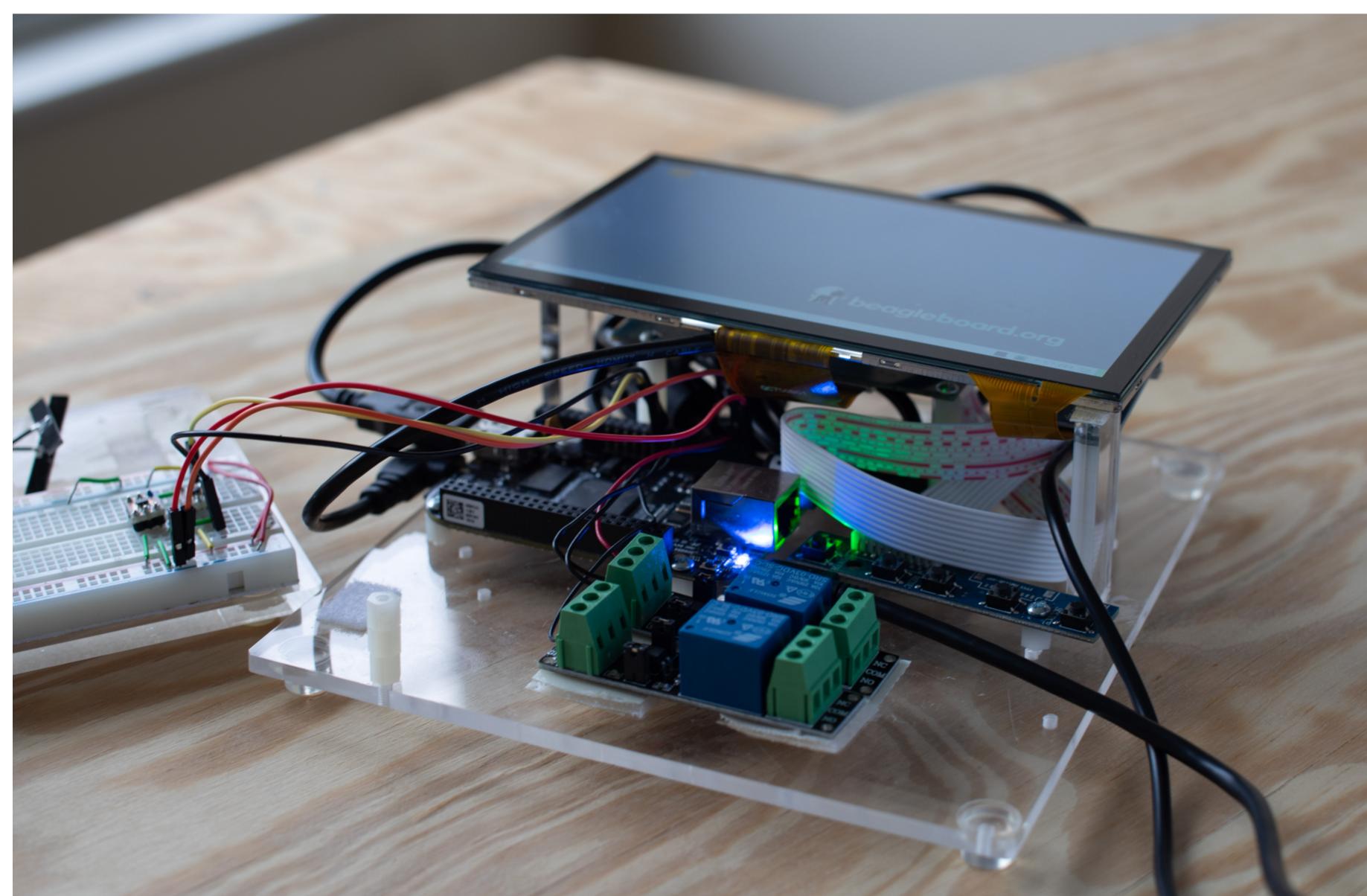
RV Automation

ECE497 Project

ROSE-HULMAN
INSTITUTE OF TECHNOLOGY

Motivation

Having one central unit for controlling all electronic parts in your camper van was the motivation for this project. With one click of a button you can switch 12 Volt power to you can from shower pump to Ventilation system. All relevant data should get controlled and monitored through a single interface. This system should enable home automation functionality to get used in your future home on wheels.



Component overview

Elevator Pitch

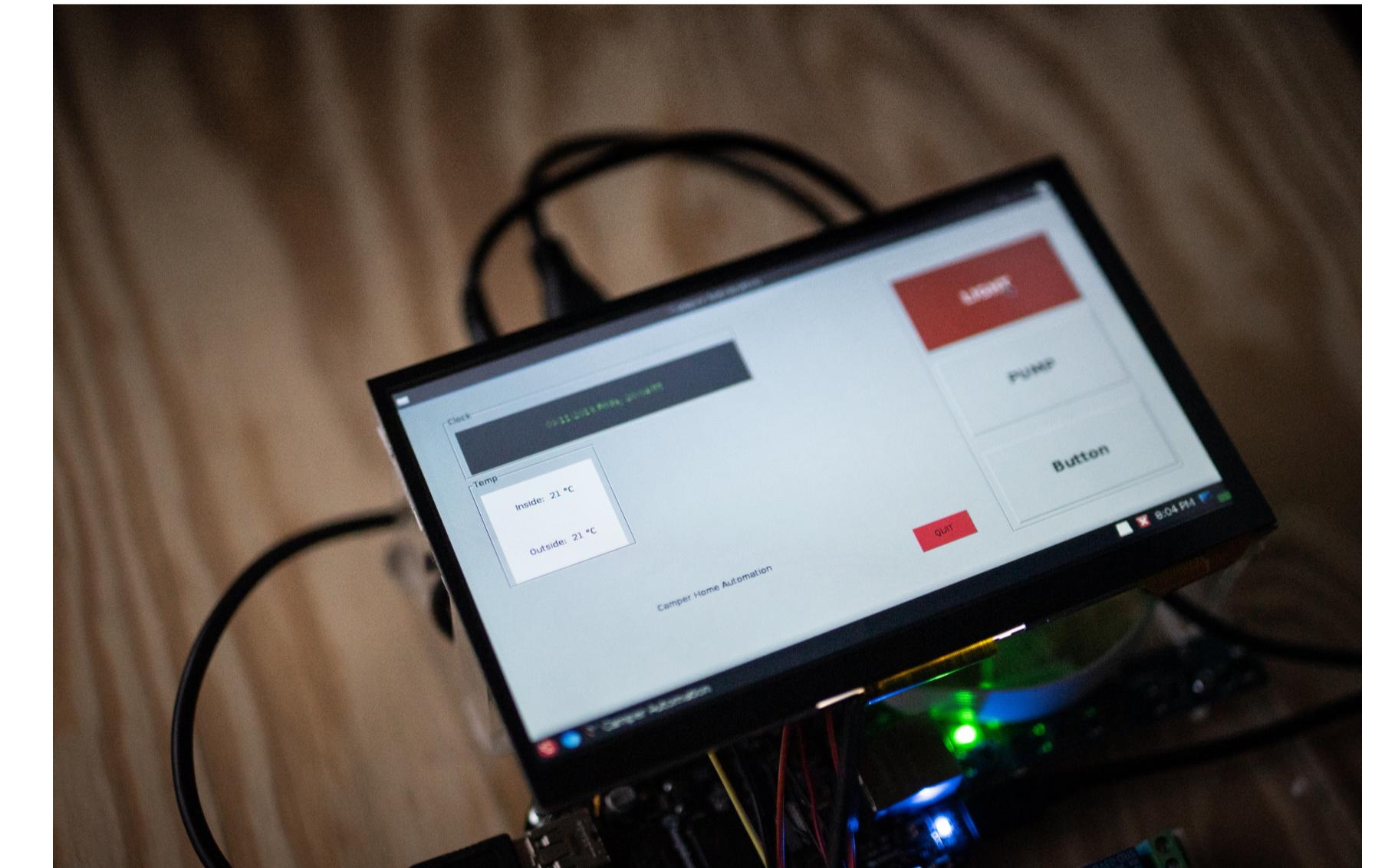
This project enables IoT applications for your camper van. The central control unit consist of a 7" LCD capacitive touchscreen and a beaglebone black as a central computing unit. The Python GUI running on the LCD controls multiple 12 Volt relays to switch power for Lightning, ventilation, security system and water pump etc. The Temperature get measured by two separate indoor and outdoor temperature sensors and displayed on the screen. A timer can be set which allows time depended relay switching.



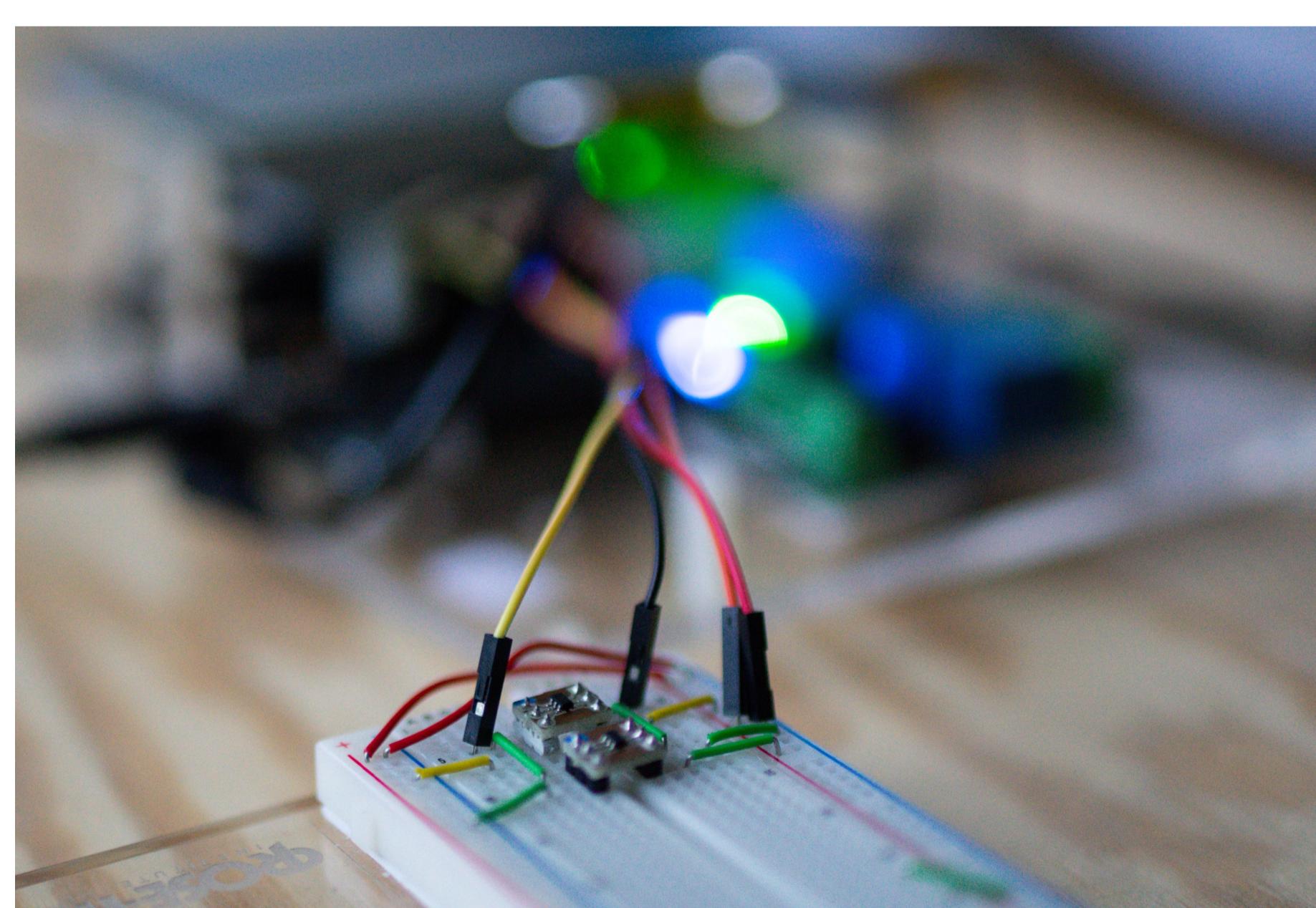
GUI relay control button

Future work

The future possibilities for this project are unlimited. The next step would be to add a 3G module to stream and access data via a web interface. For example the temperature data could get streamed to a google file and a graph could represent the temperature behaviour over time. The internet connection would allow usage of more already existing IoT applications. Additionally, dimmer for 12V LEDs would be a add-on.



Temperature monitoring



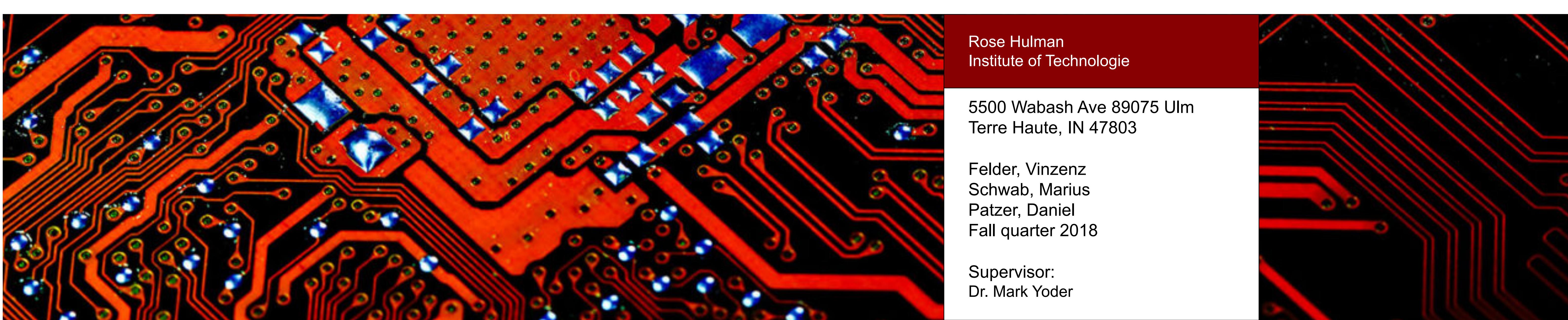
Temperature sensor TMP101

Hardware Components

- Beagle Bone black
- GreeekPi 7" capacitive touch LCD
- 2x TMP101
- 2x 3V relay
- Step-Down Converter 12V to 5V
- Wiring



eLinux wiki



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